

TRANSACTIONS
OF
THE LINNEAN SOCIETY.

I. *On the Genus Atamisquea, belonging to the Family of the Capparidaceæ.*

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A TREE belonging to the Natural Order *Capparidaceæ*, growing in the arid desert plain at the foot of the Cordillera de los Andes, which I examined with some attention in 1825, and which I then named *Atamisquea emarginata* (*Travels*, vol. ii. p. 529), was also found about the same time by the late Dr. Gillies, from whose specimens Sir W. Hooker subsequently first published its generic character (*Botanical Miscellany*, vol. iii. p. 143); but as my Notes upon the living plant, illustrated by drawings made at that time, vary in some respects from the excellent description given by that very distinguished botanist from dried specimens, I have thought that my observations upon this little-known genus may perhaps be acceptable to the Linnean Society.

ATAMISQUEA, *Miers.*

CHAR. DIFF. *Sepala* 2, magna, ovoidea, concava, æstivatione marginibus subimbricatis, cum toro carnoso cyathiformi persistente demùm indurato dentibus erectis notato basi coalita, decidua. *Petala* 6, e margine tori orta, inæqualia, lineari-spathulata, reflexa; 2 superiora erectiora, æstivatione subimbricata; 2 lateralia breviora, exteriora. *Stamina* 9, quorum 6 fertilia, longiora; *filamenta* æstivatione replicata, demùm recta, declinata, glabra, basi glandulosa, lepidota; *antheræ* oblongæ, 2-loculares, basifixæ, erectæ, demùm curvatæ. *Thecaphorum* declinatum, basi glabrum, disco staminifero cinctum, hinc geniculatum; indè grâcile, elongatum, et cum ovario lepidotum. *Ovarium* ovatum. *Stylus* brevissimus. *Stigma* obtusè 2-lobum. *Bacca* ovoidea, subcarnosa, densè lepidota. *Semina* 2 (vel abortu 1), exalbuminosa, cochleato-reniformia, funiculo libero erecto 2-furcato ex imo loculo orto lateraliter appensa. *Testa* coriacea, loculo altero incompleto hilo opposito. *Embryo* campylotropus; *cotyledones* magnæ, foliaceæ, invicem plicato-convolutæ; *radicula* teres, infera, sursùm spectans.

CHAR. NAT. *Sepala* 2 (anticum et posticum), ovoidea, concava, æstivatione marginibus subimbricatis, intùs hirsuta, extùs lepidota, decidua, basi (toro adnato) coalita. *Torus* ovalis, cyathiformis, carnosus, persistens, demùm induratus, obliquè gibbosus, margine superiori altiori, dente erecto sub-

2-fido, et lateraliter dente utrinque notatus. *Petala* sex, inæqualia, lineari-spathulata, intùs villosa, extùs lepidota, reflexa, æstivatione subimbricata, duobus lateralibus brevioribus, exterioribus, et cum sepalis alternis, duobus superioribus post anthesin reliquis erectioribus; omnia è margine tori orta. *Stamina* novem, quorum sex fertilia, disco gibbo tenui annulari thecaphorum cingenti adnata: *filamenta* glabra, æstivatione replicata, demùm recta, sursùm declinata, basi glandulâ liberâ, obovatâ, carnosâ, hirsutissimâ, et sparsè lepidotâ munita; tribus sterilibus reliquis brevioribus, fertilibus petalis longioribus: *antheræ* basifixæ, loculis duobus coriaceis obliquè adnatis intùs longitudinaliter dehiscentes, demùm curvatæ. *Thecaphorum* è basi tori sublateraliter ortum, declinatum, basi ampliatum, glabrum, disco annulari staminifero cinctum, hinc geniculatum, indè gracile elongatum, et sursùm inflexum, longitudine staminum, et cum ovario apicali lepidotum. *Ovarium* ovatum. *Stylus* brevissimus. *Stigma* obtusè bilobum. *Bacca* ovoidea, stylo apiculata, densè lepidota, 1-ocularis, pulpâ parcâ farcta, post siccationem in valvas quatuor pressione solubilis, sed non dehiscens; replo* epicarpio delapso persistente. *Semina* 2 (vel abortu unicum), exalbuminosa, cochleato-reniformia, in pulpâ subsuccosâ funiculo libero erecto bifurcato ex imo loculo orto lateraliter appensa. *Testa* coriacea, loculo altero incompleto hilo opposito. *Embryo* campylotropus: *cotyledones* magnæ, foliaceæ, incumbentes, invicem plicato-convolutæ: *radicula* teres, infera, loculo simulato celata, et ob embryonis curvaturam, hilum supernè spectans.

Frutex durus, ramosus, Americæ Meridionalis extratropicæ; ramis *abbreviatis, junioribus sublepidotis, nonnunquam spinescentibus*; foliis è ramulis junioribus ortis, parvis, alternis, brevissimè petiolatis, canaliculatis, æstivatione conduplicatis, faciebus superioribus invicem applicitis, subtùs lepidotis, costâ carinatâ; pedunculis axillaribus, solitariis, unifloris.

1. ATAMISQUEA EMARGINATA (*Miers, Trav. ii. p. 529*); foliis lineari-oblongis basi apiceque emarginatis suprâ viridi nitentibus subtùs hirsutis incanis squamisque lepidotis tectis.

Hab. In campis patentibus aridis, salinis, *Travesia* dictis, provinciæ Mendozæ.

The generic title is derived from the vernacular name, *Atamisque*. It is a tree of withered and barren appearance, not exceeding 8 or 10 feet in height; the trunk is very solid, and much bent; the wood, hard and of close grain, is of a yellow colour; the bark is very thin and smooth, formed of several yellowish green, membranaceous laminæ, peeling off in flakes, and exposing the bare yellow wood. The branches are much bent and tortuous; the younger shoots, which are furfuraceous and of a whitish hue, alone bear leaves. The leaves are alternate, broadly linear, emarginate at both ends, 3 lines long and 1 line broad, of a somewhat coriaceous texture, veinless, very entire, polished, and of a dark green above, with a central longitudinal groove over the midrib: in the young state their upper face folds inwardly, with the margins adhering closely together; and when

* The term *replum*, used by Mr. Brown, Prof. Endlicher and other botanists for the indurated margins of seed-vessels that remain after the valves have fallen away, has been objected to by Mr. Bentham (*Hook. Journ. Bot. iv. p. 326*), who thinks that it is defective and unnecessary, as the word *margo*, the meaning of which is clear, answers the purpose equally well. In the instance to which he refers (that of the persistent sutural margins of the legumes of *Mimoseæ*), the latter expression is certainly well adapted; but in the case above described, where no margin, nor any true valve can be said to exist, the latter term does not apply; for the thin epicarp appears entire and supported upon the four fibrous ribs that, rising from the base and uniting in the style, serve to support this epicarpal envelope: and although it may be assumed that its origin is due to the confluence of four carpellary leaves, of which these processes may have formed the midribs, they certainly appear finally under a form that seems better expressed by the term *replum* than by that of *margo*.

they at length open, the leaf always remains somewhat canaliculate : below it is whitishly furfuraceous, being covered with a tomentous down, that is almost wholly concealed by a number of closely imbricate peltate scales with radiate ribs, which under a lens appear like fish-scales : the petiole is short, white, and also lepidote. The flowers often axillary, sometimes terminal, are altogether covered with imbricate scales ; the peduncles, one-fourth to three-eighths of an inch in length, are usually solitary, but sometimes in pairs. The sepals are rounded, very deeply concave, the margins being very slightly imbricate before expansion ; they are at first reflexed, and soon break off transversely along the margin of the torus ; they are covered within by tomentous whitish hairs, and are lepidote outside. The torus is a fleshy deep oval cup, which after the fall of the flower becomes hardened, and exhibits a somewhat bifid, erect tooth on its posterior or upper margin, and two other smaller opposite teeth on its sides. The six petals arise in a single whorl from the inner margin of the calycine cup, and are linear, and somewhat spathulate, being hairy within, and covered on the outside with lepidote scales : four of these are of equal length, and situated in pairs, opposite the sepals, while the two intermediate shorter petals are lateral, and alternate with the two sepals ; in æstivation, the margins of the summits are somewhat imbricately disposed, those of the shorter pair being exterior to the others ; after expansion they are all thrown back, the upper pair remaining more erect. There are six fertile and three sterile stamens, all seated upon a small gibbous ring, just above the glabrous thickened base of the thecaphore ; the sterile filaments are shorter than the others, one of them being opposite to the upper petals, and the other two opposite to the lateral petals, two fertile stamens interposing between them ; the fertile filaments are as long as the petals, and though somewhat plicated before expansion, are afterwards erect, and deflected outwards near the summit ; they are quite glabrous, with a roundish fleshy gland at the base, which is covered with whitish pubescence, and a few lepidote scales ; these glands being seated upon the gibbous ring before mentioned, make it almost appear as if the stamens were monadelphous, but they are in reality free to the base. The anthers, which are oblong and basifixed on the apex of the filaments, are coriaceous, 2-celled, burst inwardly by longitudinal furrows somewhat in front, and afterwards curl downwards in an annular form. The thecaphore arises somewhat laterally from the bottom of the hollow cup-shaped gibbous torus, and is inclined upon its shorter side ; the lower part, which is glabrous, rises to the height of the cup, forming the staminiferous support above mentioned, one side of this support adhering to the lower and shorter portion of the cup, the opposite side being free and channeled almost to its axis ; above this level the thecaphore becomes more slender, is again inclined further downwards, and rising to the height of the stamens bears upon its summit the ovarium, which, with the slender portion of the thecaphore, is densely lepidote. The ovarium is of an oval form, somewhat nodding ; the style is very short, and the stigma is almost obsoletely 2-lipped. The fruit is a somewhat fleshy berry, covered with lepidote scales, about 3 lines long and 2 lines in diameter ; it is unilocular, bearing generally two seeds, which almost fill the cavity ; the epicarp is thin and somewhat coriaceous, and separable by pressure into four equal segments, leaving the seeds, and the small quantity of enveloping pulp, contained within four slender cartilaginous ribs, which arise from the base of the cell and unite in the apex ; these ribs corre-

spond with the edges of the segments, which show by their laceration that their adhesion with each other and with the ribs has been complete. Within and opposite to the lowermost of these ribs arises a funiculus or placenta, which on reaching about two-thirds the height of the fruit, branches off right and left, by two short threads, towards the hilum of the two seeds, where they are respectively attached. The seeds are smooth, of a dark red colour, reniform, or of a cochleate shape, somewhat flattened on their adjacent sides, and roundish without. The testa is coriaceous, having on one side an incomplete cell, formed by the convolution of the inner margin about the umbilical sinus; the outer integument is brownish, opaque, and striated, and adhering to the testa forms between the flexure of the embryo an extension of the false dissepiment of the spurious cell, which serves to inclose the radicle: the inner integument is membranaceous, and marked about the middle of the cotyledons with a broadish thickened chalaza. The embryo is oblong, and bent sharply inwards at both extremities, the ends of the cotyledons and of the radicle being mutually turned towards each other, so that it may be said to be truly campylotropous: the cotyledons are convolutely plicated, and somewhat white and foliaceous.

From the facts above stated it may be inferred, that the arrangement of the floral envelopes in this genus is contrary to the usual structure of the *Capparidaceæ*, which offer generally four sepals, four alternate petals, usually eight or more stamens, and a fruit, usually of two cells, with two or more placenta. Sir W. Hooker, in his generic character of *Atamisquea* (*loc. cit.* p. 143), regards its floral teguments as consisting of four sepals and four petals, in conformity with the ordinary arrangement in this family: it will be seen, however, that I have ventured to differ with that distinguished botanist in this respect, as I regard the two outer valviform envelopes as the true calyx, while the six linear segments appear to me to constitute the corolla, a view which I offer with much deference against the opinion of so high an authority. It appears to me however warranted by the fact, that these external broad leaflets form one entire whorl, as they are continuous at their origin with the margin of the cup of the torus, while the insertion of the six narrower segments (petals) is upon one line, within the margin of the same cup, which is proved by the fact, that when the sepals and petals fall away, the rupture of the former is marked by a clean line on the margin of the cup, while the remains of the claws of the petals are distinctly seen within the line of the same margin as so many projecting indurated teeth, as shown in fig. 9. This view, although opposed to the ordinary structure, is nevertheless supported by analogy in three other genera of this family, where only two sepals exist, or an entire envelope that bursts into two valves, viz. in *Busbeckia*, Endl., *Steriphoma*, Spr., and *Morisonia*, Plum. The apparent inconsistency of this distribution will disappear, if we consider the floral envelope as formed of three series, each consisting of two normal parts, the inner series appearing double, from the cleaving of the lobes down to their point of insertion; for in the origin of each upper and lower pairs of petals upon the torus there exists a manifestly distinct interval between them and the two lateral intervening shorter petals; and when the former are pulled away from the cup they cohere together in pairs by their base. Or we may still consider the normal structure as composed of two series, each of four leaflets; the sepals, from their shape and great width, may be considered to constitute a complete whorl, and may be imagined to have been formed by the cohesion

